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**(54) Title:** MACROMOLECULAR DELIVERY SYSTEMS FOR NON-INVASIVE IMAGING, EVALUATION AND TREATMENT OF ARTHRITIS AND OTHER INFLAMMATORY DISEASES

**(57) Abstract:** This invention relates to biotechnology, more particularly, to water-soluble polymeric delivery systems for the imaging, evaluation and/or treatment of rheumatoid arthritis and other inflammatory diseases. Using modern MR imaging techniques, the specific accumulation of macromolecules in arthritic joints in adjuvant-induced arthritis in rats is demonstrated. The strong correlation between the uptake and retention of the MR contrast agent labeled polymer with histopathological features of inflammation and local tissue damage demonstrates the practical applications of the macromolecular delivery system of the invention.

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